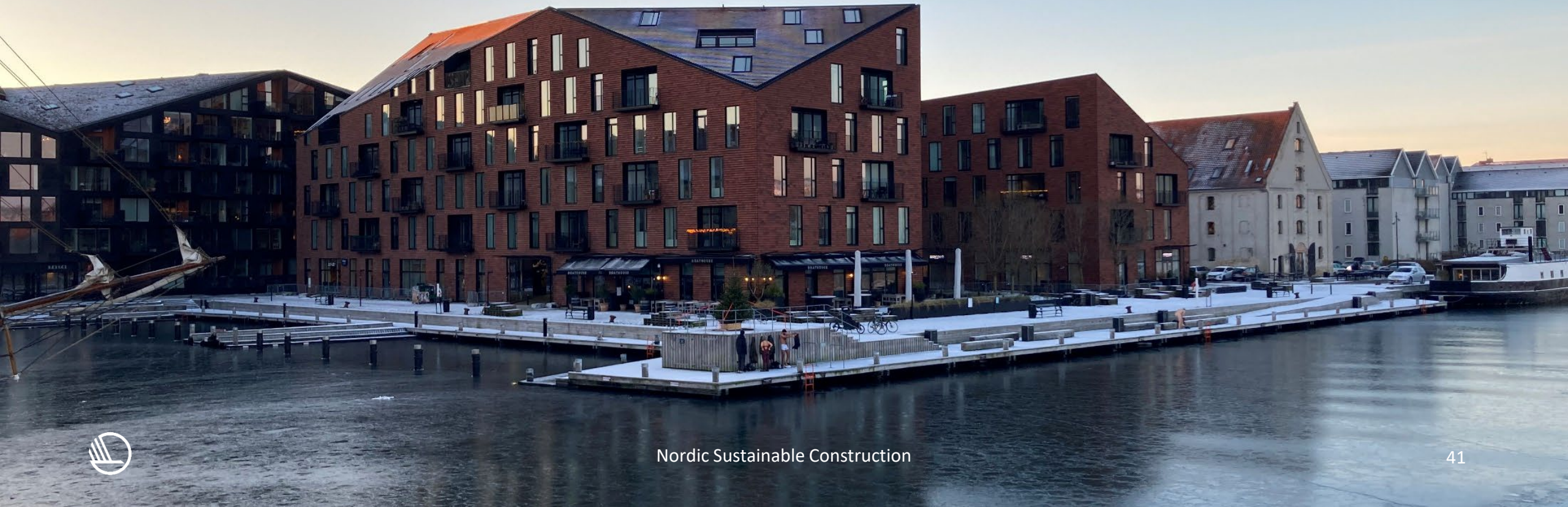


Work Package 1

Nordic Harmonisation of LCA



Nordic Harmonisation of Life Cycle Assessment, WP1

Harri Hakaste
Ministry of the Environment

Nordic Sustainable
Construction



WP1 Nordic harmonisation of life cycle assessment

Task 1 Nordic LCA practices

- Feasibility study: how far to harmonise?
- Methodological harmonisation for normative needs
- Compatibility of building LCA and infrastructure LCA
- Timely importance for policymaking

Task 2 Data for LCA

- Joint processes for gathering and verifying generic data
- Joint processes for setting lifecycle scenarios for normative LCA

Task 3 BIM for LCA

- Development of LCA guidance for BIM
- Development of national reference buildings into BIM
- Development of training models
- Coordination with BIM and other software developers

Task 4 Limit values and monitoring the decarbonisation

- Joint method for defining country-specific limit values where needed
- Joint process for reporting the climate impacts of Nordic built environment

Task 5 Acceleration Programme

- To accelerate the decarbonisation of building and construction sector



Best outcomes of WP₁

- Overview of the LCA methods across Nordic countries and Estonia
 - Understanding the differences, pros and cons
 - Recommendations for harmonization
 - Inspiration and lesson learned for other countries
- BIM-based building LCA process, describing possible pathways from BIM to LCA
- Nordic view on data needs and scenario settings for whole life cycle building environmental assessment



Thank you!

Maria Tiainen

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Harri Hakaste

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Work Package 2

Circular Business Models & Procurement





Nordic Innovation



Rasmus Malmberg

Sustainable Construction – WP2

- Circular Business Models
- Public Procurement



Projects WP2

- Circular business model workshops (w/Circular)
- **Circular procurement in cities**
- New blue biobased building material
- Place- and naturebased construction in the Nordics (w/WP3)
- **Building a retrade market for building material**
- Nordic Smart City circular fast track (w/Circular)
- **Nordic piloting program for circularity in technical building solutions (w/Circular)**



Achievements

- Contributed to Nordic Blue Building Alliance
- Cooperation on circular buildings and public procurement in Nordic cities
- Circular operations in Nordic construction companies
- Building an ecosystem of retrade in the Nordic countries



WP2: Circular Procurement

Tampere:

What does the practical implementation of circular economy and reuse of building materials actually mean – what can the companies realistically deliver when the municipality procures buildings?

Stavanger:

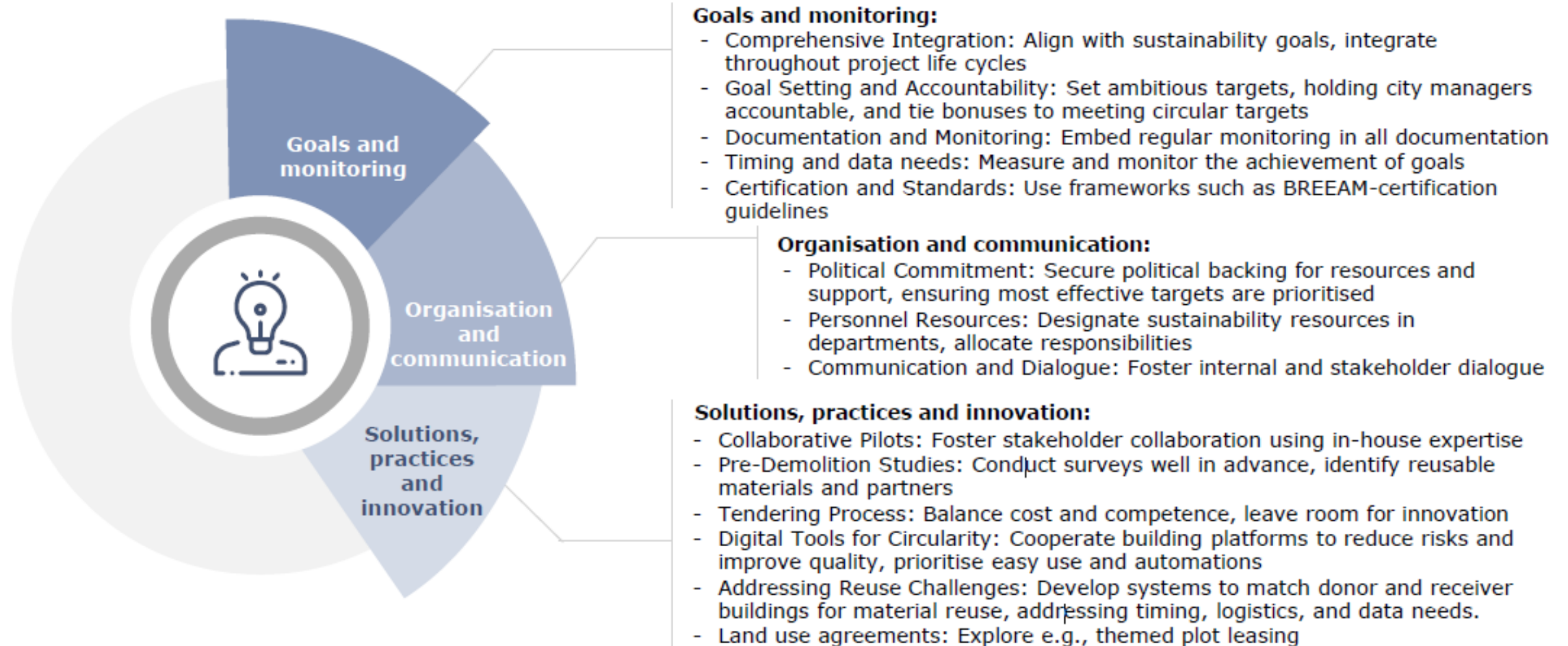
Kindergarten built in wood and producing surplus energy to both cover the needs of the kindergarten and surrounding housing.

REPORT

AFRY has analysed circular building projects in the cities of Tampere, Stavanger, Copenhagen and Stockholm.



Key lessons learned on successful practices



Building a retrade market in the Nordics

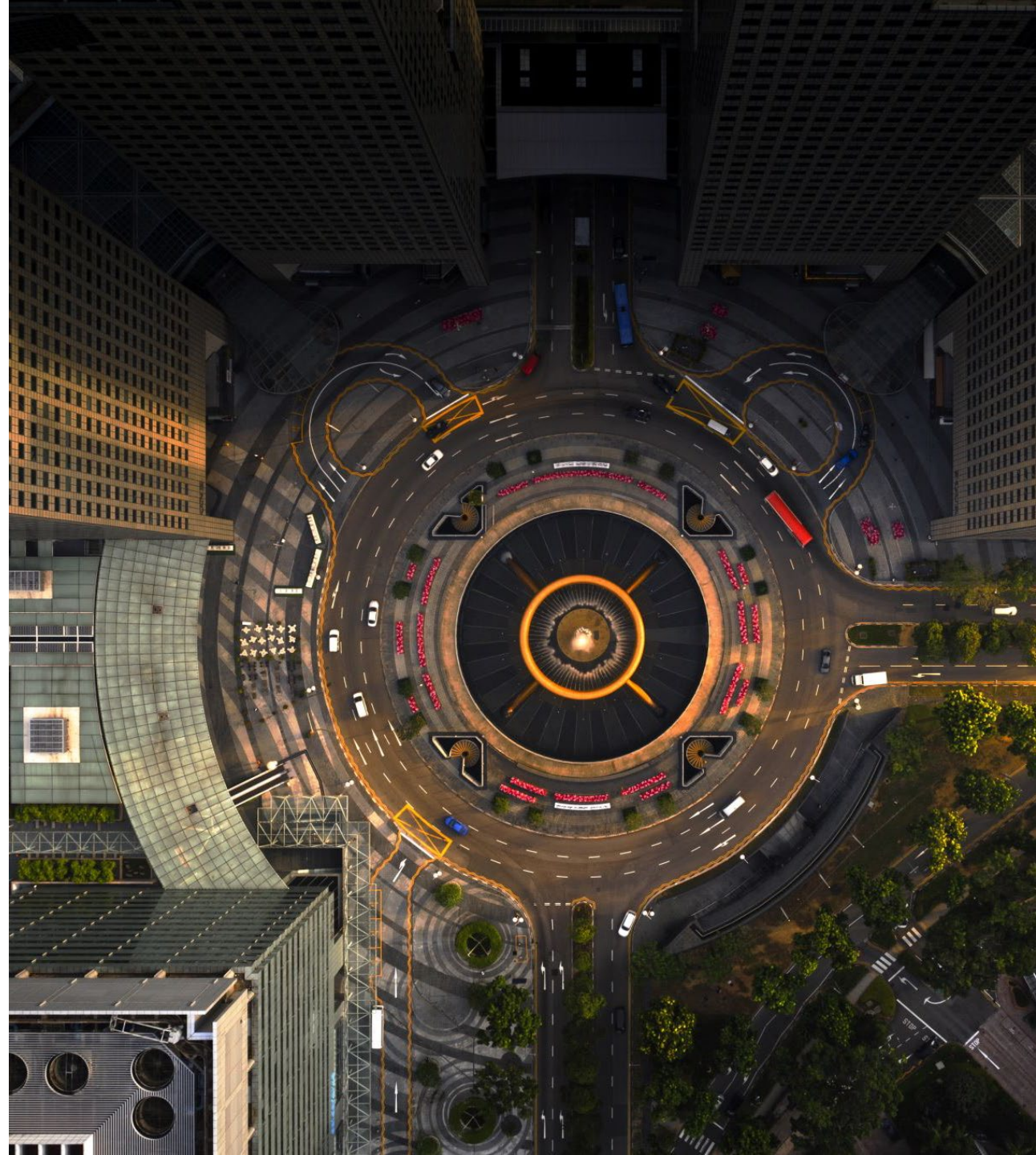
- Project is lead by Natural State
- Gatherings most mature businesses within the construction materials sector
- Showcase that reuse of critical construction material works
- Exchange knowledge on similarities and differences in the Nordic markets
- Scaling companies and solutions in the Nordic market



Nordic Smart City Circular Fast Track

- 18 Nordic Cities
- Circular innovation fast track through implementation of tested solutions in other cities.

➔ Job creation, circular solutions,
private-public collaboration



What will be carried forward

— Collaboration with Nordic companies

- Company needs and company collaboration/ value chains for circularity in the construction sector

— Collaboration with Nordic cities

- Cities are important innovation hubs
- Public procurement drives market development
- Cooperation with private businesses

- Important level for Nordic cooperation



Kiitos
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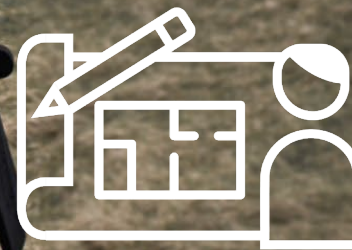
Nordic
Innovation

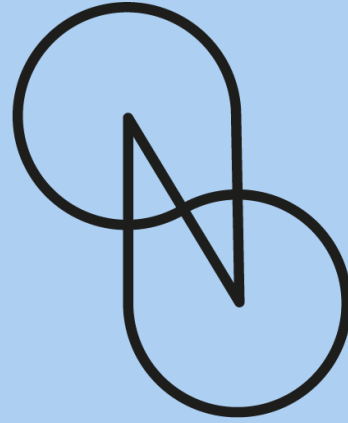
Work Package 3

Sustainable Construction Materials & Architecture



Nordic Sustainable Construction





SUSTAINORDIC



Sustainable Construction Materials and Architecture

- To map out the system around sustainable construction in the Nordics and identify levers and hinderances for the use of sustainable and resilient building materials in architecture.
- To gain understanding the role of governance and architecture in adopting sustainable and resilient materials and practices in Nordic construction and reuse and retrofit.
- To examine the barriers and opportunities for (re)introducing and integrating place based and nature-based practices into the mainstream/conventional construction industry in the Nordics.
- To draw out recommendations to be fed into The Nordic Vision 2030.



Learning from the sector

The results are based on knowledge gathered through:

- Input from 160 experts, industry players (SME's and big players), practitioners, policy makers and activists in the systems around construction
- 39 interviews
- 34 events
- 4 roundtable conversations
- 8 publications
- Over 950 participants have contributed indirectly through events and debates hosted by SUSTAINORDIC

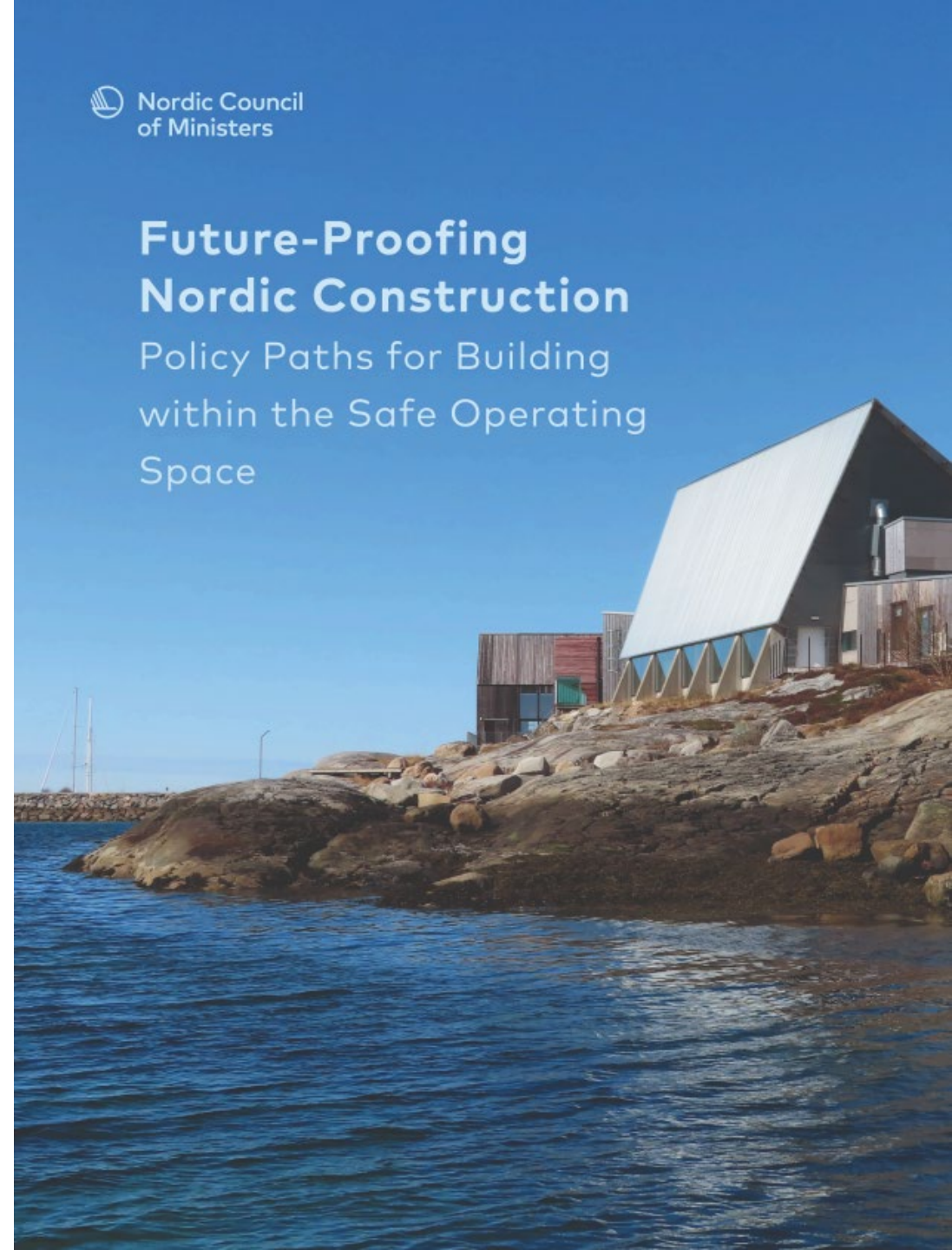


All of this collected knowledge summed up in a set of policy recommendations

[Future-Proofing Nordic Construction](#)



**Future-Proofing
Nordic Construction**
Policy Paths for Building
within the Safe Operating
Space



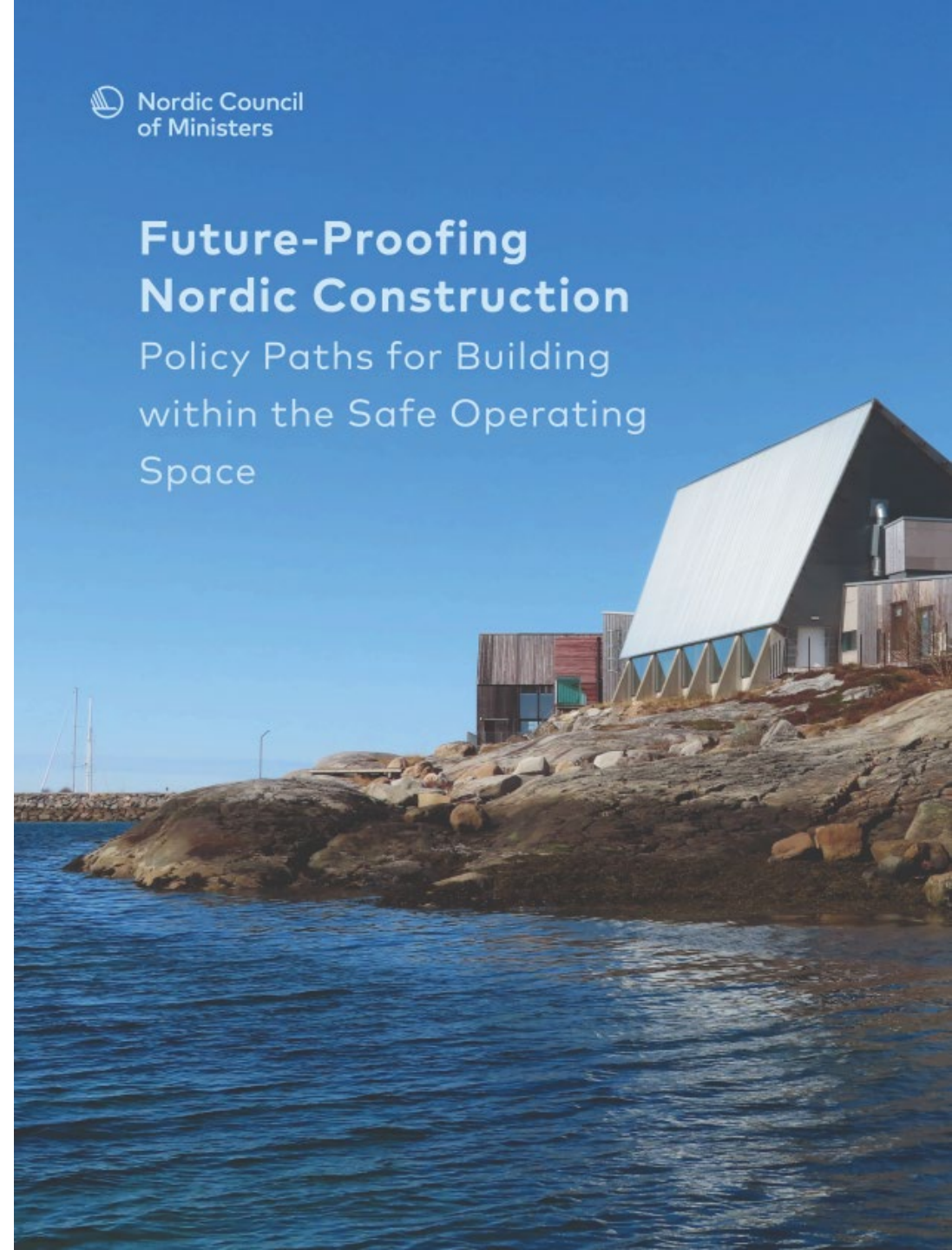
An overarching view of the recommendations

- **Preservation and adaptive reuse:** Prioritizing retrofitting and renovating buildings over new construction, to reduce resource use and preserve cultural heritage.
- **Reduce per-capita square meters:** To respond to the increasing need for (affordable) housing in larger cities in the Nordics without resorting to building new, renovate and utilize existing building stock.
- **Shift from material consumption to sustainable value-Creation:** Prioritizing natural resource preservation and regenerative practices to reshape economic and political incentives.
- **Place-based user- and community-driven development:** Place-based and participatory urban planning that aligns with local needs and responds to site and draws on local traditions.
- **Transparent and holistic assessment:** Level playing field under regulation that is centered around clear carbon and ecosystem impact measures as the central health and safety measure with priority over all other considerations in all legislation.



Future-Proofing Nordic Construction

Policy Paths for Building
within the Safe Operating
Space



Place-based and Nature-based Construction in the Nordics - A Collab between WP2 and 3

- **Planetary Boundaries Seminar**
Exhibition, 50 participants, 6 speakers, 1 cofunder
- **The Great Repair Moves North Workshop**
Workshop on timberframing and adobe brick work, 33 participants, 6 lecturers, 3 cofunders
- **Final Conference: Place-based and Nature-based Architecture in the Nordics**
Full day conference, 2 site visits, material exhibition, 80 participants, 19 speakers, 1 cofunder
- **Nordic SME Involvement**
20 interviews with SMEs, academia and municipalities connected to place-based and nature-based materials in construction
- **Publication: Recommendations from the small and the many in place based and nature based construction**



Main learnings on Place-based and Nature-based Construction in the Nordics

- We already have all the nature-based and circular solutions we need to transform construction to operate within planetary boundaries.
- Ambitious legislation is the main hinderance for the transformation and therefore also holds the main opportunity for change.
- We do not need to add any new square meters to the building mass in the Nordics to cover the need for housing.
- We need to create level playing field under Paris compliant legislation



Work Package 4

Emission-free Construction Sites



Nordic Sustainable Construction



The importance of planning and designing

- Early planning:
 - Use LCA to identify key emission sources (modules A₄/A₅: machinery, waste, transportation).
 - Align design and construction goals early.
- Stakeholders' roles:
 - Governments: Set restrictions, offer incentives.
 - Investors & project owners: Lead decision-making, guide designers.
- Guidelines: Practical methods for planners, designers, and others.



Barriers

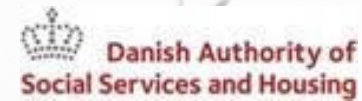
- Communication gaps
- Time and cost pressures
- Economic structure prioritise short-term growth over sustainability
- Rethink priorities for sustainability



Thank you!

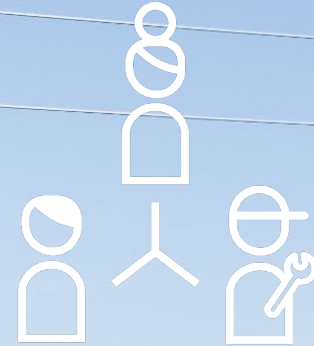
adalsteinn@graennibbyggd.is
astros@graennibbyggd.is

Programme partners



Work Package 5

Programme Secretariat & Competences for Reuse in Construction



The need for competences for reuse

Cost and skills shortages are holding us back

The biggest challenges to adopting sustainable construction practices, according to surveyors worldwide, are:



High initial costs



Skills, knowledge and training shortages



Cultural issues, established practices and lack of awareness

RICS (Royal Institution of Chartered Surveyors)

6.6% of the EU employment



13.5 million direct and at least twice as many indirect jobs in supplier industries

Aging of the construction workforce will require millions of new workers until 2035



Key for energy savings and green energy production

Still a "low-tech" sector, but digitalisation is on the rise

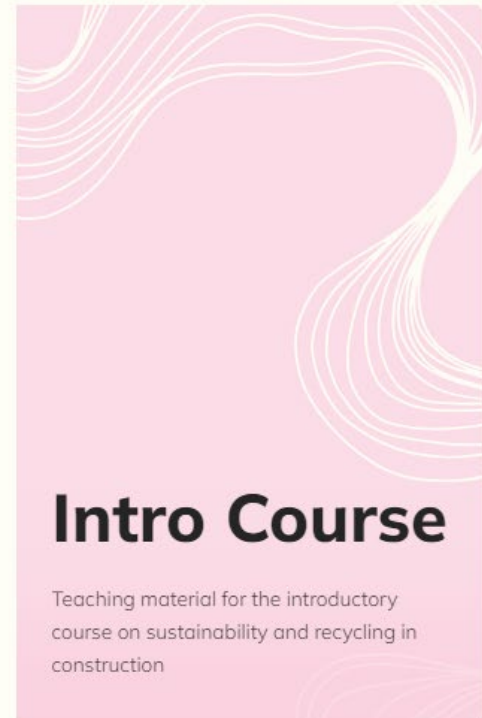


Digitalisation and green transition represent a big challenge for learning and skills upgrade

CEDEFOP (The European Centre for the Development of Vocational Training)



Skills4Reuse



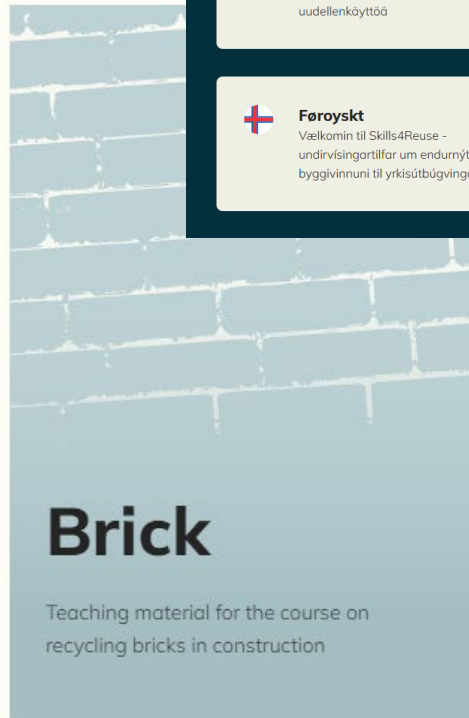
Intro Course

Teaching material for the introductory course on sustainability and recycling in construction



Wood


Teaching material for the course on recycling wood in construction





Brick


Teaching material for the course on recycling bricks in construction


Välj språk - Vælg sprog - Velg språk - Valitse kieli - Veldu tungumál - Select language


 **Dansk**
Velkommen til Skills4Reuse - et undervisningsmateriale om genbrug i byggeriet til erhvervsuddannelser →


 **Svenska**
Välkommen till Skills4Reuse - ett undervisningsmaterial om återanvändning i byggbranschen för yrkesutbildningar →

 **Norsk**
Velkommen til Skills4Reuse - et undervisningsmateriale om gjenbruk i byggebransjen for yrkesutdannelser →

 **Suomi**
Tervetuloa Skills4Reuse sivustolle - täältä löydät ammattopistoille suunnattua oppimateriaalia koskien rakennusmateriaalien uudellenkäyttöä →

 **English**
Welcome to Skills4Reuse - a teaching material on recycling in the construction sector for vocational education →

 **Íslenska**
Velkomin á Skills4Reuse - kennslufni um endurnýtingu í byggingariðnaði fyrir starfsnámskeið →

 **Føroyskt**
Vælkomin til Skills4Reuse - undirvísingartilfar um endurnýtslu í byggivinnuni til yrkisútbúgvingar →



Skills4Reuse is developed by:

 Find it here: www.skills4reuse.com

 Nordic Sustainable Construction

 VIDENSCENTER FOR HÅNDVÆRK BÆREDYGTIGHED

 NORION CONSULT

Feedback: Relevant, useful and of high quality

- A lot of positive response from teachers and vocational education leaders and heads of department
- Particularly emphasised areas are:
 - Overall high quality
 - Good videos
 - Good level of difficulty
 - Easy to apply to teachings
 - More than just 'how to' reuse

"There is a teacher's guide with learning objectives and all, a pure gift for the teacher. There will be a new transition requirement from the basic course to the main course. Your material will be able to cover pretty much everything here."

- Vocational school teacher



Knowledge accelerator

- 30 Published reports
- 82 News & 7 newsletters
- 40 Webinars
- A lot of LinkedIn post
- 45 Speaking engagements
- 13 Nordic programme meetings
- 10 Site visits
- 3 Ministers meetings
- 14 Construction industry dialogues

= Accelerating the knowledge foundation to implement a green transition of the construction sector



Nordic Sustainable Construction

Sharing results 2022-2024

● 34 in person
● 11 online

- Nordic Minister Meeting (2023, Iceland)
- International workshop on whole life carbon assessments in the built environment (UK)
- Agile nation meeting (UK)
- Nordic collaboration on Eurocodes
- Transposition of the EPBD's Life cycle Global Warming Potential requirements in the Nordics
- Ministry of Environment - environment day (Finland)
- Nordiske miljøgrupper om CO2 i byggeri (Norway)
- COP29 Mitigation Ambition and Implementation Work Programme focus on construction
- NBO Housing Nordic in Stockholm
- Ministry of Climate info day on regulation of carbon footprint in Estonia

Events shown on the map include: Roadmap for Sustainable Construction, Nordiske byggmyndighedsrådsmøde 2023, Reference Group Meeting and Workshop, Nordiske byggmyndighedsrådsmøde 2022, Nordic Climate Forum for Construction 2022, NBO - Housing Nordic 2024, International Conference on Net-Zero Built Environment 2024, Nordic Minister Meeting 2024, Nordic Climate Forum for Construction 2024, Levelling up the climate transition in the built environment, Leap to Zero, Global Alliance for Buildings and Climate, Buildings and Climate Global Forum, Buildings and Climate Global Forum (second panel discussion), 3rd OECD Sustainable Buildings Roundtable, EU Commission's High Level Construction Forum 2022, EU Commission's High Level Construction Forum 2024, New European Bauhaus Festival 2022, Transition path way for Construction, EU Commission and Nordic sector voices, Building Green, UIA: International Architect Conference Håndværk, Nordic sector workshop, Copenhagen BIM, OECD meeting on Whole Life Carbon policies, Circular Build Forum, Australian Building Delegation, WGBBC event and panel debate "Decarbonisation of the built environment", Policies for Whole life Carbon in Construction, Nordic Climate Forum for Construction 2023, Construction Goes Circular, Policies enabling reuse.

Other events: COP29 (online) in Azerbaijan, COP28 in Dubai.

Nordic Sustainable Construction
Working to make the Nordics a leading region in sustainable and competitive construction
Byggeri · Copenhagen · 3K følgere · 2-10 medarbejdere

1 alumnus arbejder her

Startside Om Indlæg Job Personer

Oversigt
The construction sector needs to transform towards sustainability, circular economy and lower the negative environmental and climate impact from construction. Therefore, Nordic Sustainable Construction works to fulfill the ambition in Nordic Vision 2030 of establishing the Nordics as a leading region in sustain... se mere

Vis alle detaljer →

Indlæg

Nordic Sustainable Construction · 3.189 følgere · 1d · 🌐

Rasmus Malmberg highlights key milestones and achievements in Work Package 2: Circular Business Models and Procurement. ... mere

Nordic Sustainable Construction · 3.189 følgere · 1d · 🌐

The Toolbox has landed 🎉
We are happy to announce the launch of our ... mere

Construction
Results from the Nordic Sustainable Construction Programme
2021-2024

Nordic Sustainable Construction Symposium

The conclusion and celebration of 3 years of extensive work on strengthening the collaboration in the Nordic construction sector and minimise environmental and climate impact. December 4th in Copenhagen.

[Read more and sign up here](#)

WORK PACKAGE 1
 Nordic Harmonisation of Life Cycle Assessment

WORK PACKAGE 2
 Circular Business Models and Procurement

WORK PACKAGE 3
 Sustainable Construction Materials and Architecture

WORK PACKAGE 4
 Emission-free Construction Sites

WORK PACKAGE 5
 Competences for Reuse in Construction & Programme Secretariat

KNOWLEDGE CENTRE

JOIN OUR NEWSLETTER

Harmonisation and green benefits

February 2024: Nordic priority paper to harmonise and find green benefits in the adaptation of the national annexes for eurocodes

November 2024: 8 groups have presented indicative potentials in the national adaptation of eurocodes annexes for harmonization and/or climate and/or resource:

1. Nordic mirror group to TC250 acts as steering group and reports to representatives from authorities: Collection of reports on harmonization and/or green potentials of Eurocodes (all parts), Dag Burgos
2. Basis of structural and geotechnical design, Part 1 (EN 1990-1), Jochen Köhler
3. Climatic actions (wind, snow, temperature) (EN 1991), Svend Ole Hansen
4. Traffic loads (EN 1991), Heikki Lilja
5. Design of Concrete structures (EN 1992), Linh Cao Hoang
6. Design of Steel structures (EN 1993, main parts), Wylliam Husson
7. Design of Masonry structures (EN 1996), Adrian Bergsagel Malvåg
8. Geotechnical design (EN 1997), Gunilla Franzen

2025-?: Potential to harvest in a new programme.



06 February 2024

Nordic priority paper to harmonise the national annexes for eurocodes

Background

Since 2018, the Nordic countries have collaborated on lowering the climate and environmental impact of construction in order to make the Nordics the most sustainable and competitive region in the world as a part of the Nordic Vision 2030. This vision has been reaffirmed by the Nordic Ministerial Declaration on 'Nordic commitment to low carbon construction and circular principles in the construction sector – common effort and common gain.' in September 2023.

Due to the revision of the eurocode standards at European level and the subsequent development of national annexes, the Nordic authorities have been discussing how to move towards a common Nordic understanding of harmonisation and green initiatives in the national annexes.

Based on these discussions, the Nordic steering group for harmonisation of building regulations agreed to aim for a partial harmonisation solution. This includes harmonisation of selected requirements for safety, loads, load combinations and materials, which should be suitable and realistic for Nordic harmonisation.

On that basis, it was decided that the Nordic authorities formulate this common Nordic priority paper to act as a framework and statement of intent for future harmonisation of the national annexes to the eurocodes in the Nordic countries.

Purpose and goals

The revision of the national annexes provides an opportunity to look into potential Nordic harmonisation areas while at the same time looking into whether some areas in the annexes causes unintended and disproportionate negative effects on the climate and environment. Improved rules for building design to ensure minimised use of construction material leads to positive effects on the environment, climate as well as the cost of construction.

To support the Nordic Vision, the green potential should act as a focal point in the Nordic harmonisation of the national annexes. However, changes to ensure green and sustainability objectives shall result in efficiency and not potential administrative burdens. It is therefore important that Nordic harmonisation of the eurocodes is

Key results & conclusions

- Effective and useful Nordic collaboration between authorities, researchers and construction industry
 - Improved and more aligned regulation
 - Nordic voice heard and used in the EU and beyond
 - Nordics are seen as frontrunner within transition in construction
 - Website with easy accessible knowledge, tools and education materials freely available
 - Strong foundation to a new programme
- Accelerated the green transition of the construction sector



Panel discussion with work packages



WP1
Harri Hakaste

Ministry of the
Environment



WP2
Rasmus
Malmborg

Nordic Innovation



WP3
Pernille Martiny
Modvig

SUSTAINORDIC



WP4
Björn Karlsson

Ministry of
Infrastructure,
Iceland



WP5
Coco Krusbæk

Danish Authority
of Social Services
and Housing



Moderating:
Helle Redder
Momsen

Coffee/tea break

